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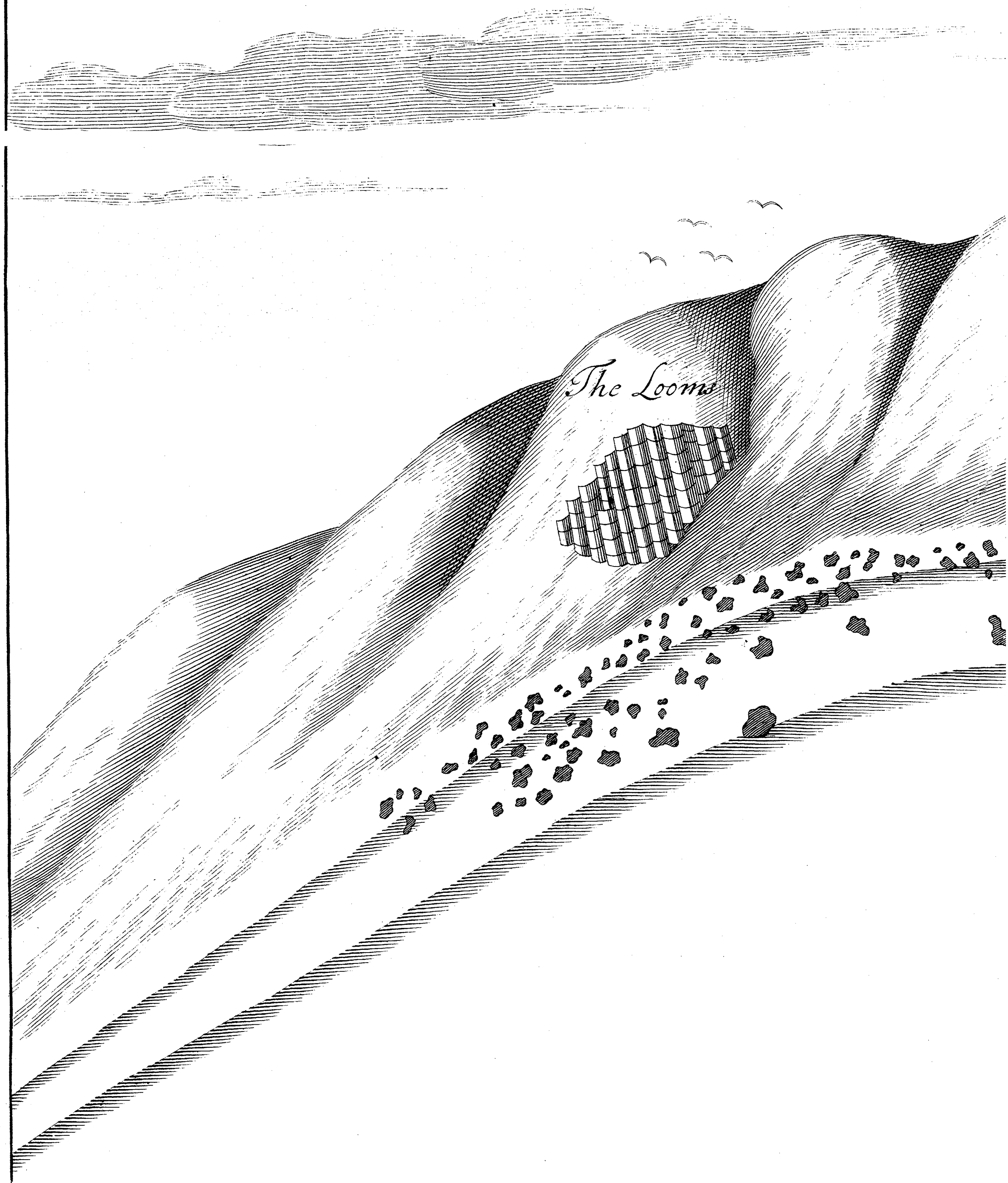

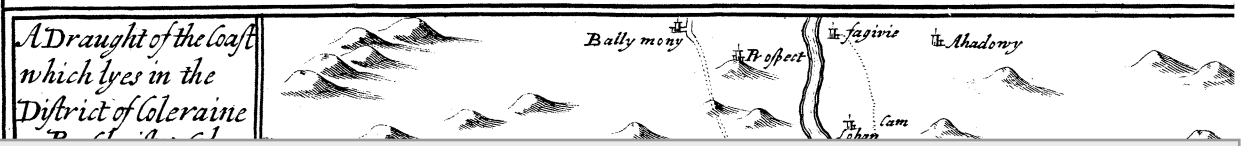

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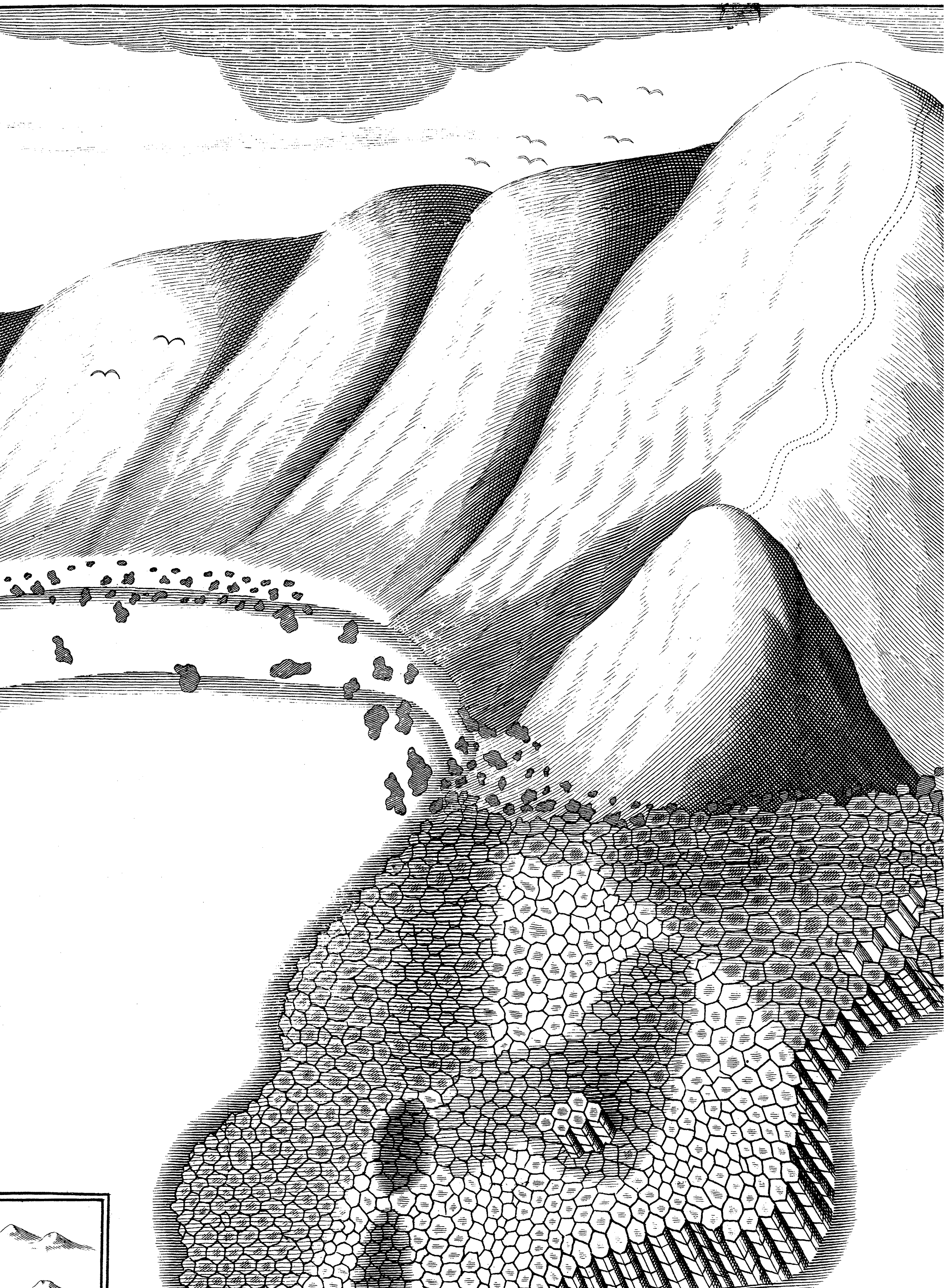
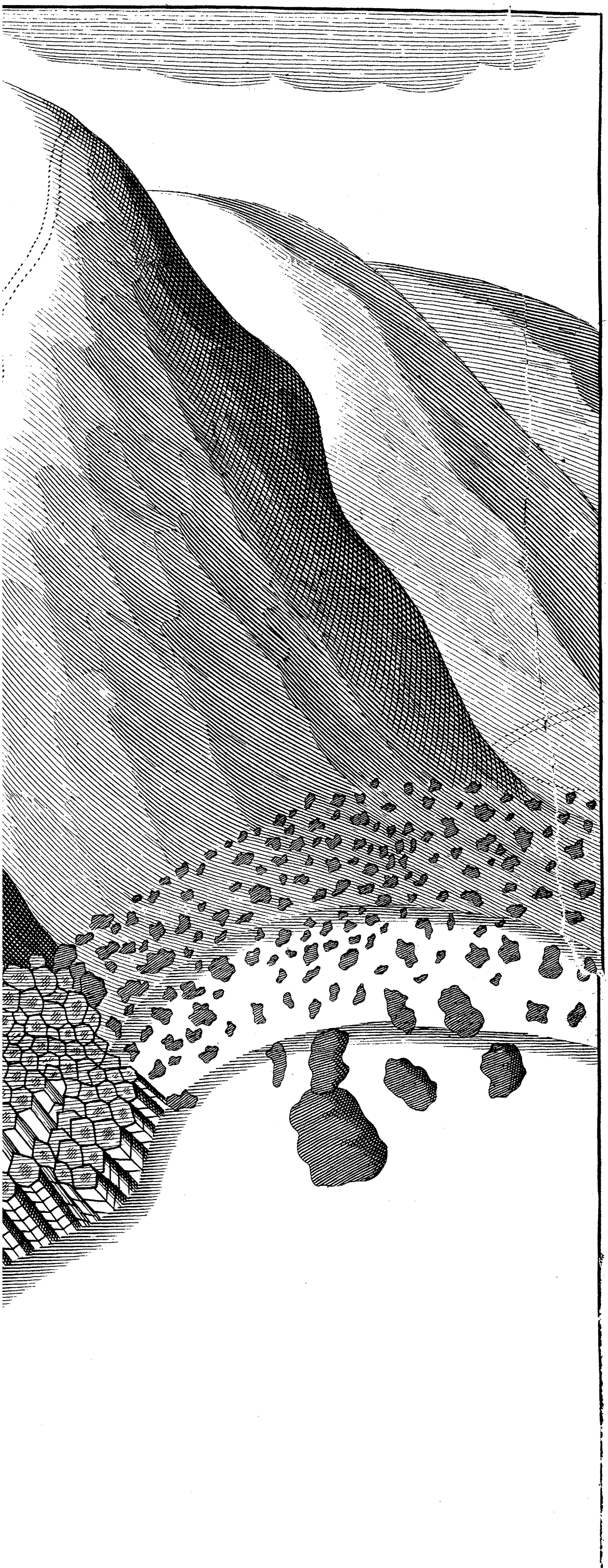
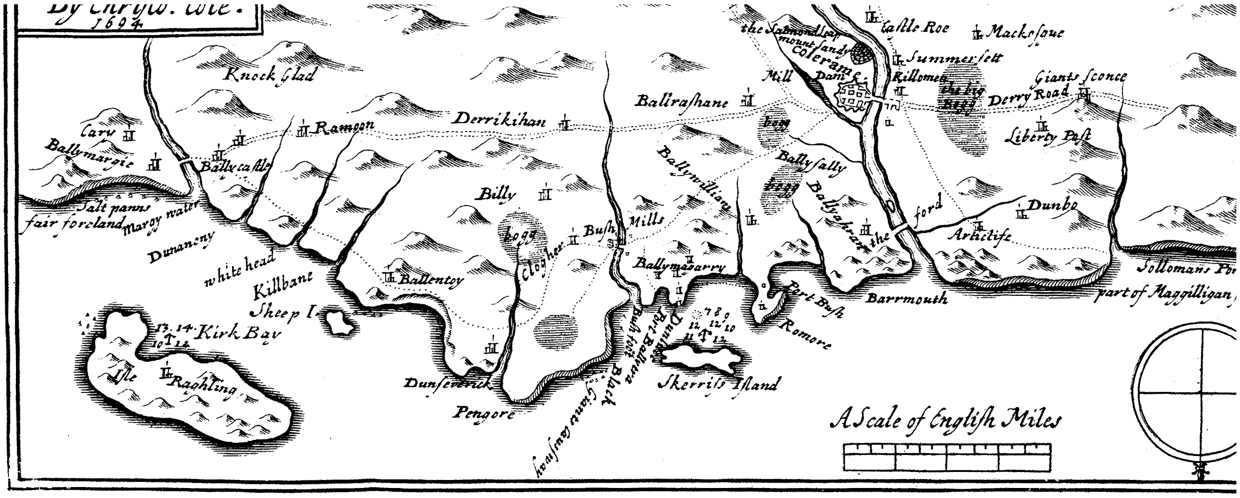
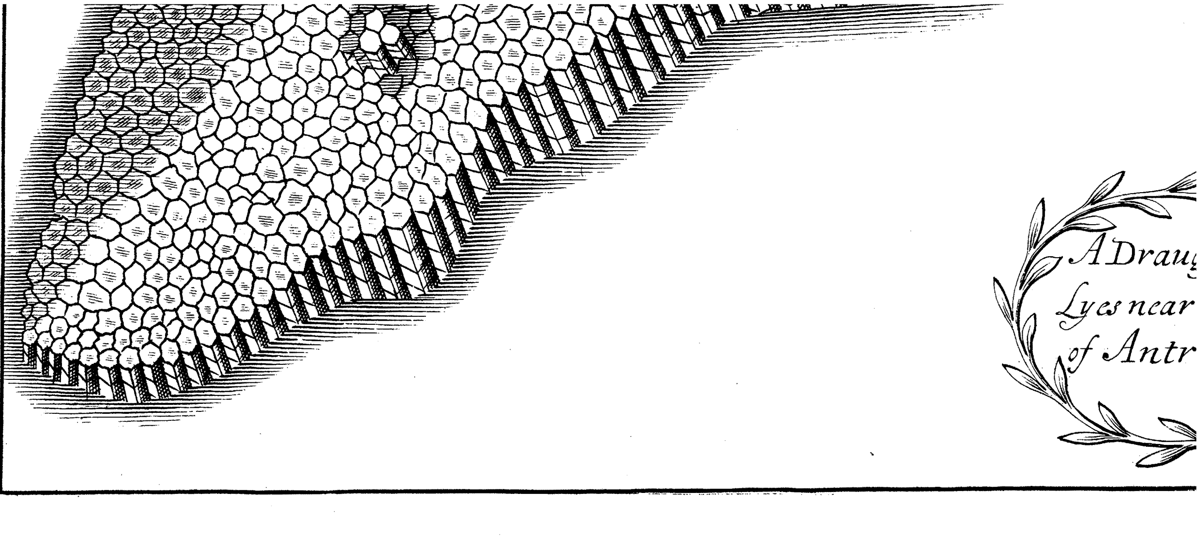





By Chryſt. Cole.
1694
Knock Glad
Cary
Ballymargie
Bally caſtle
Salt panns
fair foreland
Margy water
Dunaneny
white head
Killbane
Sheep I.
13. 14. Kirk Bay
10 T 12
Iſle
Raghling
Ramoon
Derrikihan
Billy
bogg
Clogher
Buſh Mills
Ballentoy
Dunſeverick
Pengore
Giants Cauſway
Black
Buſh foot
Port Ballyera
Dunluce
Ballymagarry
7 8 9
12 12 10
11 T 12
Skerriſs Iſland
Ballraſhane
bogg
Ballywilliam
Ballyſally
bogg
Ballyaſhran
the Salmond leap
mount ſandy
Colerame
Mill Dam
Caſtle Roe
Mackſoue
Summerſett
Killomen
the big bogg
Derry Road
Giants ſconce
Liberty Poſt
Dunbo
the ford
Artclife
Port Buſh
Romore
Barrmouth
Sollomans Po
part of Maggilligan
A Scale of Engliſh Miles

Sollomans Porch
f Maggilligan strand


A Draug
Lyes near
of Antr

Draught of the Gyants Cawſway which
es near Pengorehead in the County
Antrim.——By. C: Cole:
1694:

I. *An Account of the* Giants Cauſway *in the North of* Ireland: *By the Reverend Dr.* Sam. Foley.

THE *Giants Cauſway* is placed by Mr. *Cole* in the annext Map of the Sea-Coaſt of the Diſtrict of *Colerain*, ſomewhat more than Eight Engliſh Miles North-Eaſt from the Town of *Colerain*, in the County of *Antrim*, about Three Engliſh Miles from the *Buſh-Mills*, almoſt directly North. It runs from the bottom of an high Hill into the Sea, no Man can tell how far, but at low-water the *length* of it is about 600 Foot, and the *breadth* of it in the broadeſt place 240 Foot, in the narroweſt 120 Foot: It is very unequal likewiſe in the height, in ſome places it is about 36 Foot high from the level of the Strand, and in other places about 15 Foot.

It conſiſts of many Thouſands of Pillars, which ſtand moſt of them Perpendicular to the Plain of the Horizon cloſe to one another, but we could not diſcern whether they do run down under Ground like a Quarry or no. As to the Number of the Pillars, we could not gueſs that they are fewer than One Hundred Thouſand; but the ſhape of the Cauſway is ſo irregular, that we could not number the Columns of one ſide or end, in order to make a probable Computation of them all; *ſome are very long, and higher than the reſt, others ſhort and broke; ſome for a pretty large ſpace of an equal height, ſo that their tops make an even plain Surface, many of them imperfect, crack'd, and irregular; others entire, uniform, and handſome,* and theſe of different ſhapes and ſizes: We found none at all Square, but

but almoſt all Pentagonal, or Hexagonal; only we obſerved that a few had ſeven ſides; and many more Pentagons than Hexagons; but they were all irregular, for none that we could obſerve had their ſides of equal breadth; the Pillars are ſome of them 15, ſome 18 Inches, ſome two Foot in Diameter, none of them are one entire Stone, but every Pillar conſiſts of ſeveral Joynts or Pieces, as we may call them, of which ſome are ſix, ſome twelve, ſome eighteen Inches, ſome two Foot deep.

Theſe Pieces ſtand cloſe one upon the other, not joyning with flat ſurfaces; for when you force one off the other, one of them is always Concave in the middle, the other Convex. There are many of this kind of Joynts, which lye looſe upon ſome part of the Cauſway, and on the Strand, which were blown or waſh'd off the Pillars: Theſe Joynts are not always placed alike, for in ſome Pillars the Convexity is always upwards, and in others it ſtands always downwards. They always lye as cloſe as 'tis poſſible for one Stone to lye upon another, ſo that on the out-ſide of the Pillars you can but diſcern the crack that joyns the two Stones: When you force them aſunder, both the Concave and Convex Superficies are very ſmooth, as are alſo the ſides of the Pillars which touch one another: For when we pulled away ſome of the Pillars which ſtood outwards to the Weather, the ſides of the Pillars which ſtood next behind them looked as freſh as Stones newly hewen, being of a whitiſh Free-ſtone colour, but a finer cloſer gret; whereas when we broke ſome pieces off them, the inſide appeared like dark Marble.

The Pillars that are made up of theſe Joynts ſtand ſo cloſe one to another, that a Knife can hardly be thruſt in between the ſides of them; and though ſome have five ſides, and others of them ſix, yet the Contextures of them are ſo adapted, that there is no vacuity between them; the inequality of the Numbers of the ſides of the Pillars being often in a very ſurpriſing and wonderful manner throughout the whole Cauſway compenſated by the inequality of the Breadths and Angles of thoſe ſides: So that the whole at a little diſtance looks very Regular; and where in many place a good number of the Pillars are exactly of the ſame height, the Superficies of the tops of them looks very like the Pavements that are in ſome Gentlemens Halls, abating the irregularity of the ſides, but theſe lye as cloſe.

The Pillars, as I ſaid before, are ſome of them thicker than others, according as 'tis neceſſary to make them lye cloſe in thoſe various Figures, but every ſingle Pillar does retain its own Thickneſs, and Angles, and Sides from top to bottom; ſo that if one of them were cut Horizontally into never ſo many Segments, they would all have Sides and Angles exactly equal and parallel.

Thoſe Pillars which ſeem to be entire as they were Originally, are at the top flat and rough; thoſe which lye low to the Sea are waſh'd ſmooth; and others that ſeem to have their Natural tops blown or waſh'd off, are ſome Concave, and others Convex.

The Looms or Organs, as the Country People call them, mentioned in the Draught, are a parcel of ſuch Pillars as thoſe in the Cauſway, which ſtand in the ſide of a Hill at ſome diſtance from the Cauſway; the Pillars in the middle are longeſt, and thoſe of each ſide of them are ſtill ſhorter and ſhorter.

Anſwers

Anſwers to Sir Richard Bulkeley's *Queries relating to the Giants Cauſway, wrote down when we were upon the Cauſway.*

Quer. 1. W*Hether any of the Pillars are Hexagons, or whether there be any Squares, or whether they be all Pentagons only ?*

Anſw. The Pillars are compoſed of Stones which ſtand one upon another, ſome half a Foot, others a Foot, others a Foot and half, and two Foot thick; which are moſt either Pentagons or Hexagons all of them irregular, we ſaw no Squares, and but a few Heptagons.

Q. 2. *Whether any of thoſe Pillars have Joynts, and which have not ?*

Anſw. All the Pillars are compoſed of diſtinct pieces, which we may call Joynts, that lye upon one another as cloſe as 'tis poſſible for Stones to lye.

Q. 3. *Whether the Natural tops of theſe Pillars have any gravings upon them, or ſtriate lines, or are naturally ſmooth ?*

Anſw. The tops of the Pillars have no gravings or ſtriate lines; thoſe which are often covered with the Sea, are made ſmooth by the waſhing of it; but thoſe nearer the Land are flat and rough: Some of the tops are now Concave, and ſome Convex; but we ſuppoſe their Natural tops, which were rough and flat, are waſhed or blown off.

Q. 4. *Whether there be any Regularity in the ſides of the Cylinders of the ſeveral ſorts of Cylinders, and whether the ſides be not very unequal, ſome very broad, and ſome very narrow, as in the Planes of Cryſtals ?*

Anſw. The ſides of the Pillars are from top to bottom very ſmooth, but thoſe ſides are of unequal lengths, however they anſwer the ſides of the Pillars that ſtand next about them, ſo that they lye cloſe, and without any Interſtices. *Note, as a more full and further Anſwer to this Query, I find by the two Joynts of this Stone ſent hither to* Dublin, *that the ſeveral ſides of one and the ſame Pillar are as in the Planes of Cryſtals, of very unequal breadths or lengths, call it either, when you meaſure them Horizontally; and that in ſuch as are Hexagonal a broader ſide always ſubtends, or is oppoſite to a narrower, which ſort of Geometry Nature likewiſe obſerves in the formation of Cryſtals.*

Q. 5. *Whether the Mountain, or broken Cliff it ſelf ſhews any Beds of theſe Pillars in ſeveral Claſſes, or* ſtratum ſuper ſtratum, *the loweſt to the Sea being all Perpendicular; and how many Beds or Orders there are to make up to the top of the Mountain; or elſe whether they lye confuſedly, and on heaps, or obliquely?*

Anſw. The high Bank hanging over the Cauſway on that ſide which lyes next it, and towards the Sea, ſeems to be for the moſt part compoſed of the common ſort of Craggy-Rock; only we ſaw a few irregular Pillars on the Eaſt ſide, and ſome farther on the North, which they call the Looms or Organs; but juſt over the Cauſway we ſaw as it were the tops of ſome Pillars appearing out of the ſides of the Hill, not ſtanding, nor lying flat, but ſloping.

Q. 6. *What Beds of Earth are near them, or what other ſort of Stones above them?*

Anſw. No Beds of Earth, but all common Rock.

Q. 7. *What may be ſuppoſed to be the number of thoſe Pillars?*

Anſw. We gueſs they cannot be ſo few as One Hundred Thouſand; but the ſhape of the Cauſway is ſo irregular, that it is ſcarce poſſible to reckon them.

Q. 8. *Whether the Superficies of the ſides of the Pillars be Caniculate, or any other ways hollow'd?*

Anſw. Not at all, but ſmooth Planes.

Q. 9. *Whether the Cauſway conſiſts of only one* Stratum, *or Claſs of Pillars?*

Anſw. The Cauſway is very unequal both in height and breadth: The higheſt Pillars we ſaw we computed to be about 36 Foot high from the place where we ſtood on the Strand beſide the Cauſway; others not above 20, ſome 10 Foot, and ſome ſtill ſhorter, *though theſe do not ſtand according to Regular Orders, or different Claſſes:* We ſuppoſe each Pillar throughout the Cauſway to continue the ſame to the very bottom, for all that we ſaw on the ſides were ſo.

I have annext two Figures, drawn by Mr. *Cole*, Collector in thoſe Parts; one of the Cauſway, the other of the adjoyning Sea-Coaſt; which will make the whole much more Intelligible, and to theſe I refer you. He tells me, he has not drawn the Cauſway as a Proſpect, nor as a Survey or Platform, which he thought would not anſwer his Deſign, and that he has no other name for it but a Draught, which he took after this ſort: He ſuppoſed the Hills and Cauſway, &c. Epitomized to the ſame height and bigneſs the Draught ſhews them, and this he fancied the moſt Intelligible way to expreſs it. Thus far Dr. *Foley*.

Some Notes upon the foregoing Account of the Giants Cauſway, *ſerving to further Illuſtrate the ſame. By* T. Molyneux, *M. D. S. R. S.*

THis mighty large Pile of Stony Columns, that goes under the Name of the *Giants Cauſway*, I take not only to be as Remarkable a Natural Curioſity of its ſort as this *Country* affords, but perhaps as may be met with in *Europe*: For I cannot well imagine, that if a Foſſil ſo extraordinary in its kind were to be found in any of theſe more civilized Parts of the World, that it could hitherto eſcape the many *Inquiſitive Naturaliſts*, that of late by their Induſtrious Reſearches and Writings have ſo plentifully embelliſh'd, and ſo far advanced the *Hiſtory of Nature* in all its parts.

But we muſt confeſs that this ſort of Learning has hitherto been much more diligently cultivated, as to the *Vegetable* and *Animal Kingdoms*, whilſt the *Foſſil* or *Mineral*, though ſcarce affording leſs Variety, has not been ſo carefully examined, but rather neglected. However ſo very notable a Production in Nature, as the Stones of this Cauſway, were it to be found at leaſt in any of our Neighbouring Kingdoms, I am confident could not have paſſed ſo long undeſcribed: And ſince 'tis a *Foſſil*, we muſt reckon it among the *Non-deſcripts*; I would not omit any thing that lay in my Power, which might the leaſt contribute to further Illuſtrate ſo very *Obſervable* a *Curioſity*, though I have never as yet been upon the place my ſelf.

But here it may not be amiſs at firſt, to obviate a groſs miſtake, I find not a few, though I confeſs ſuch only that are perfect ſtrangers to Natural Hiſtory, have been apt to run into, by thinking this great Pile of Stones ſo compactly put together, is rather the Workman-ſhip of Art and Mens Hands, than an Original Production of Nature; miſguided, I ſuppoſe, chiefly by the *Barbarous Name* the Superſtitious People of the Country have given it; who through Ignorance, do uſually aſcribe whatever is ſtrange and extraordinary, though Natural, to the working of *Giants*, *Fairies*, *Dæmons*, and ſuch like Imaginary Cauſes.

But if any one will in the leaſt conſider its Situation, adjoyning cloſe to precipitous Hills, not Acceſſible by Man without great difficulty; the way of its Courſe running ſtrait forward into the very Sea, and loſing it ſelf under Water; that there is not the leaſt ſign of Morter,

Morter, or any equivalent Cement, to joyn the Commiſſures or Sides of the Columns together; that there are no foot-ſteps of the ſtrokes of Tools or Chiſſels, in the Surface of any part of the Stone; that there are other parcels of the like Stone, which lye ſtill in their Native Beds, as they were firſt produced in the adjoyning Mountain. If, I ſay, one will but a little conſider theſe Circumſtances, I am ſure he can't imagine that *Men* could have the leaſt Deſign in putting all this uſeleſs Lumber in this moſt wonderful manner together in ſo Remote and Deſolate a place. And for ſuch, that will aſcribe it to *Giants*, or *Dæmons*, I think do not deſerve any Anſwer.

But nothing puts this point more out of Diſpute, than to make a little Enquiry into other Works of Nature of the like kind; where though perhaps we may find nothing altogether the ſame, yet we may obſerve ſome of her Productions, that at leaſt bear ſuch an *Analogy*, or Reſemblance to the Compoſition and Figure Remarkable in theſe Stones, that we ſhall eaſily conclude Theſe as well as They muſt certainly be the Architecture of the Regular Hand of Nature.

Among the ſeveral *figured Stones* already deſcribed by Authors, I find none that has more agreement with thoſe that compoſe our *Giants Cauſway*, than the *Entrochos*, the *Aſtroites*, or *Lapis Stellaris*, and the *Lapis Baſanus*, or *Baſaltes*: And yet for all the great Reſemblance they have in ſome particulars, they differ very much in others: I ſhall here therefore ſet down, for the more clearly underſtanding the above Deſcription of the Cauſway, wherein conſiſts the agreement and diſagreement between thoſe three ſorts of Stones, and this we are now more particularly treating of.

The *Entrochos* agrees with the Pillars of our Cauſway in that it's a Stony Subſtance, formed by Nature Columnwiſe, and conſiſting ſometimes of 20 or 30 ſeveral *Internodia*,

Internodia, or Joynts ſet one a top of another; but then it differs in that its outward ſhape is round and Cylindrical, in its having a hole or Pith run from top to bottom through all the Joynts, in the ſetting on, or way of ſitting one Joynt to another, and in its ſize and magnitude.

But the make of the *Aſtroites*, or *Lapis Stellaris*, ſeems to have ſtill a greater affinity in its Formation with our *Iriſh* Stones; for 'tis not only ſhaped Column-wiſe, as the *Entrochos*, and joynted with ſeveral *Internodia* cloſely adjuſted to one another, but its ſides are *Angular*, and the manner of the Commiſſures of one Joynt to another in ſome particulars more reſembles the way Nature obſerves in the Joynting of this Stone. *Boetius* in his *Gemmarum & Lapidum Hiſtoriâ*, ſpeaking of the *Aſteria vera*, or *Aſtroites*, has theſe words: *Plures ſimul cohærent articuli, ita concinnè. juncti & aptati, ut nullus Artifex melius jungere potuiſſet, ſeparari tamen facile à ſe invicem poſſunt.* Which is exactly agreeable to the joynings of our Stone; but then it muſt be obſerved, that the ſides of the *Aſtroites* are always ſulcated, or a little furrow'd, and are conſtantly *Pentagons*; whereas the *Iriſh* Stone has its ſides perfectly ſmooth, and plane, and ſometimes in *Hexagons* and *Heptagons*, as well as *Pentagons*.

Moreover if we Minutely compare the inward contrivance of two Joynts of the *Aſtroites* cloſing with one another, and two Joynts of this *Iriſh* Stone, we ſhall find a more conſiderable difference in the Commiſſure, than the external Superficies of both Stones at firſt ſight would ſeem to intimate. For the *Aſtroites* has furrow'd and protuberant Rays ſtriking from its centre, ſomewhat as they draw a Star, whence it has its Name, that adapting their Concavities and Convexities together, cauſe the cohæſion of the Joynts to one another; whereas the internal Superficies of the *Internodia* in our *Iriſh*

Stone

Stone ſends forth no ſort of Rays from its Centre, and unite to one another by a quite different Articulation, as may be gathered from the Deſcription: But here Dr. *Foley* has omitted one Remarkable Particular, that I muſt needs take notice of; for beſides what the Doctor Remarks of the bottom or top of each Joynt having a large round Concavity or Convexity, that extends it ſelf from the Centre of the Stone within an Inch or two of the Angular Circumference; examining two Joynts that were ſent up from the place hither to Town, I obſerved likewiſe, that the bottom or top of each Joynt round this Concavity or Convexity either riſes with an eminent Verge or Ridge, if it be Concave in the middle; or if it be Convex, is hollow'd with ſuch a ſort of Grove, as to receive cloſely into it all the eminent Ridge of the next Joynt either above or below it; ſo that each Superficies in the Articulations adapt themſelves on all ſides ſo exactly one to t'other, as 'tis poſſible for two Bodies, that are only contiguous, and not cohering, but moveable from one to another with little more force than is requiſite to ſtir a Body of that Gravity: But this peculiar moulding in the Joynts would be far better expreſt by a Scetch that ſhould exactly repreſent the bottom and top of two of them ſeparate from each other, than by any Deſcription conſiſting of never ſo many words.

Some of the Figures of the Plate-ſtones Dr. *Liſter* gives us in the *Philoſ. Tranſact.* N°. 100. ſeems to have ſome agreement to the Joynts of theſe Pillars, in being Hexagonal, and having in the middle, at top, or bottom, a round Concave or Convex Superficies, eſpecially that mark'd *Fig.* 32. but then 'tis much ſmaller, and he ſpeaks of it as a ſingle Plate, without any more Joynts found with it.

But the *Aſtroites* alſo as well as the *Entrochos*, differs extreamly from our Stone in its ſize, or magnitude; for

for the largeſt that is found of either of thoſe kinds, do not much exceed the thickneſs of a Man's Thumb, whereas our Columns are ſome of them two Foot in Diameter.

Yet this diſproportion of bulk is not ſo conſiderable a difference, ſince we obſerve that Nature affects the like diſparity in other of her Works, and thoſe too nearly allied, and evidently of the ſame Tribe or Family. For Example, to inſtance a Compariſon taken from Vegetables, let us conſider the vaſt diſproportion between one of our ſmall joynted *Ruſhes* or *Reeds*, and the largeſt *Eaſt-Indian Bambou*, one of which I remember to have ſeen in *Holland* above 26 Foot high, and as thick as a Man's middle, and yet theſe are Plants all of the ſame Species and Claſs.

I choſe the rather to inſtance theſe kind of Vegetables that have joynted ſtems, on the account they ſeem to bear ſomewhat of Analogy or Reſemblance to the *Geniculated Mineral*, or *Rock-Plants* we are ſpeaking of, as I may call them with that accurate and experienced Enquirer into Natural Hiſtory, Dr. *Liſter*.

This affinity between Plants and Foſſils, will not ſeem altogether imaginary to any one that Judiciouſly conſiders, how the various Claſſes of Beings in the Creation, even from the perfecteſt to the moſt imperfect are link'd together, and as it were related by ſlow deſcents and Gradations from one to t'other; ſo that ſome of every Rank ſtill partake of certain immediate Properties, common to the Tribe above them, and below them, as well as their own: Thus, the *Monky* has ſomething of the *Man*, and *Quadrupede*; the *Batt*, of the *Bird* and *Beaſt*; the *Amphibious*, of the *Beaſt* and *Fiſh*; the *Hirundo Marina*, or *Flying Fiſh*, of the *Bird* and *Fiſh*; the *Molluſci*, and *Zoophyta*, of the *Fiſh* and *Plant*; and ſo of the reſt.

But to return to our *Giants Cauſway*; nothing among all the Foſſil Tribe that I have ſeen or read of, comes ſo nigh in all reſpects, in its Formation, Subſtance, Size, way of Growth, or manner of Standing, &c. to the Columns whereof 'tis compoſed, as the *Lapis Baſaltes Miſenus*, deſcribed by *Kentmannus* in *Geſner de Figuris Lapidum*, from whence *Boetius* takes both his Figure and Deſcription, whereof he ſays there is a great large Bed within three Miles of *Dreſden* in *Saxony*: He gives the following Account of it thus in his own words. — *Lapides anguloſi plures coagmentati* Baſalten *repræſentant, qui creſcit formâ & craſſitudine tigni mediocris, ſingularis quidem ſed copioſus, atque ita junctus coaptatuſque, veluti ab Arculario arte commiſſus eſſet; ſeptem, ſex, quinque, nonnunquam ſed rarius quatuor Angulorum: Omnino figurâ trabis erectæ, foris lævis, & tactu minime aſper, ferrugineus, ponderoſus, duritie velut adamantis; Hi Lapides ſic coagmentati è terrâ ulnas decem & ſeptem exſtant; quanto ſpatio intra terram condantur, nemini adhuc exploratum eſt.* Thus far *Kentmannus*; who could ſcarce in ſo many words have better deſcribed the Collection of Pillars, that make the *Giants Cauſway*, as if he had ſeen them on the place; Only I find this difference between them and the *Miſnean Baſaltes*, that its Columns were one entire Piece from top to bottom, and ſome of them four-ſquared; whereas our *Iriſh Baſaltes* is compoſed of Columns, whereof none are four-ſquared, and all of them divided into many Joynts. So that I think it may not improperly be called, to diſtinguiſh it from this and all other Foſſils,

Lapis Baſaltes vel *Baſanos maximus Hibernicus, angulis minimum quinque plurimum ſeptem conſtans; crebris articulis ſibi invicem affabrè conjunctis, ſed facilè ſeparabilibus, geniculatus.*

Whether our *Iriſh Baſaltes* can pretend to the Name *Baſanos* on the ſame account the *Miſnean* does, from the

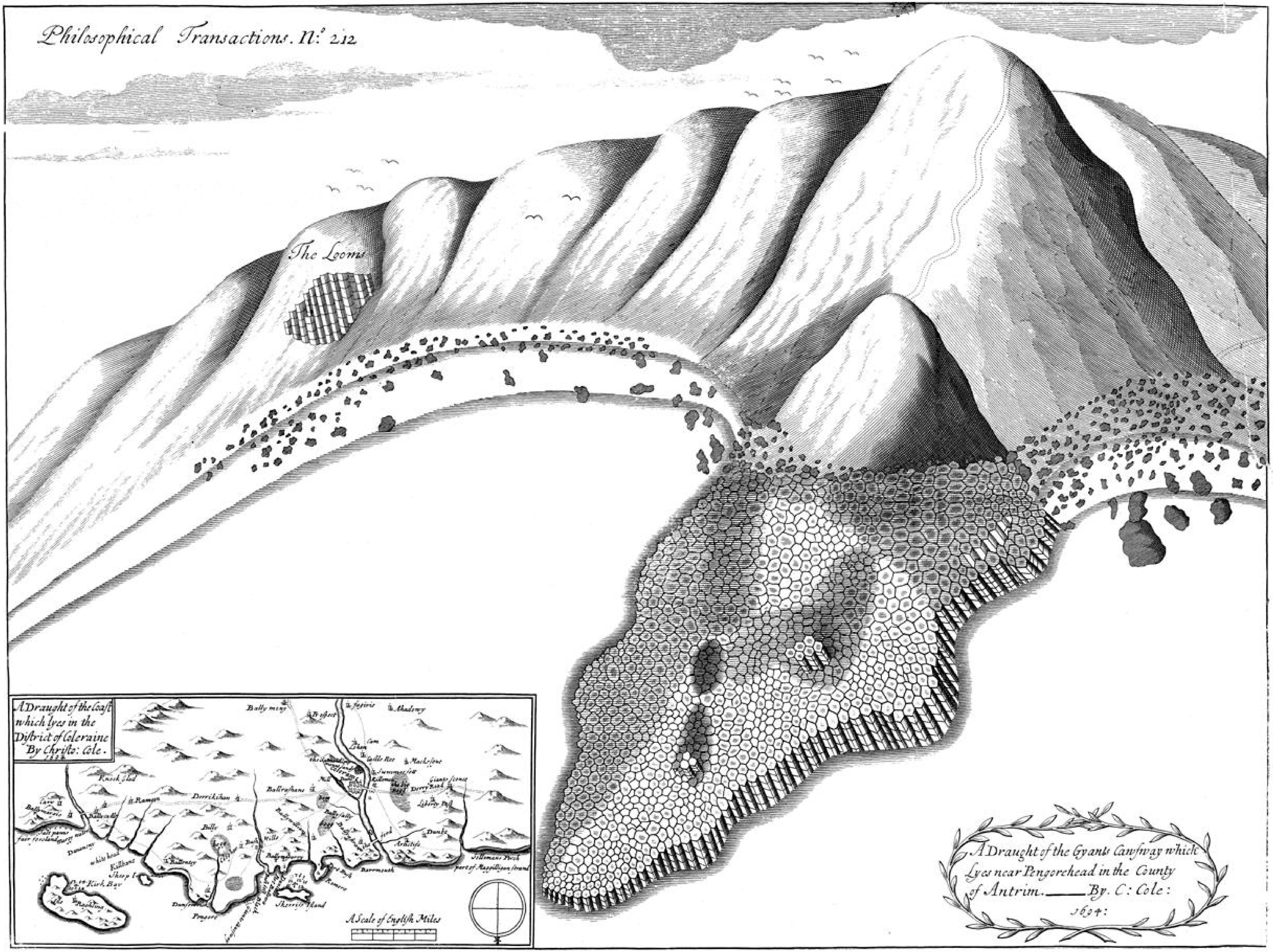
Greek word Βασανίζω, *exploro*, becauſe it has the Property of the *Touch-ſtone*, that ſhews by lines drawn with Metals on its ſmooth Surface, which are Genuine, and which Adulterate, I cannot poſitively ſay; becauſe thoſe Pieces I have are ſo rough, that unleſs ſome part of the Superficies were Artificially poliſh'd, the Experiment cannot be made: Yet I have reaſon to believe it would ſucceed, were the Stone poliſh'd; becauſe I find *black Marble* in general, ſo it be of a cloſe Texture and hard, as this is, always partakes of that Property.

May the 19*th*. 1694.

POST-SCRIPT.

SInce my Writing of this, I find inſerted in one of the late *Philoſ. Tranſact.* N°. 199. that is but juſt come to my hands, a ſort of an Account of the *Giants Cauſway*, that is ſo full of Errors, and groſs Miſtakes, that nothing in it can be relied on; as where it ſays, *The Pillars do not conſiſt of Joynts, but are of one entire Piece*, where he calls them *Cylinders*, and a little after, *Cylinders with Angles*, and ſays, *ſome of them are four-ſquared*; of which ſort of Figures there is not one to be met with in the whole Number. But of this enough, which I have added only for Truth's ſake, that no one may be miſguided in this Piece of Natural Hiſtory by Miſtakes, or falſe Reports.

Philoſophical Transactions. N.° 212



A Draught of the Coaſt which lyes in the Diſtrict of Coleraine By Chriſto: Cole. 1694

A Draught of the Gyants Cawſway which Lyes near Pengorehead in the County of Antrim. —— By. C: Cole: 1694: